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Innovation Society Today. The Reflexive Creation of Novelty

Michael Hutter, Hubert Knoblauch, Werner Rammert & Arnold Windeler *

Abstract: *»Innovationsgesellschaft heute: Die reflexive Herstellung des Neuen«.* While innovation has shaped modern society from its very inception, it is currently gaining new dimensions: Innovation is becoming increasingly reflexive, heterogeneously distributed, and ubiquitous. *Reflexivity* implies more than the intentional transformation of routine actions; it also refers to the transformation of social practices based on continuously (re-)produced knowledge about innovation. Thus, innovation itself becomes the aim and purpose of social activities: as the meaning and motif of (what we will refer to as the "semantics" of novelty), as a component of practical routines (the "pragmatics" of creative action), and, finally, as part of systematically (re-)produced social structures of generating novelty (the "grammar" of innovation regimes). *Heterogeneous distribution* refers to the observed shift from the individual entrepreneur to networks of innovation involving divergent actors. Ubiquity indicates the current expansion of innovation beyond the traditional spheres of science and economy and its generalization into an imperative for social action. This article presents a research framework that addresses the following key questions: *How is novelty created reflexively, where can this process be observed, and which actors are driving it?* By pursuing an extended notion of innovation, the framework promotes a sophisticated, sociological lens which is more encompassing than conventional economic perspectives. Our goal is to develop a more in-depth and empirically founded understanding of the meaning of innovation in contemporary society and the social processes it involves.

Keywords: Innovation, innovation society, reflexivity, heterogeneous distribution.

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1. A Research Framework for Reflexive Innovation[1]

Society's ability to reinvent itself is currently under debate. This discussion no longer centers solely on new technologies and economic innovations, but on how novelty is currently created in all spheres of society, how it is discerned in its nascent stages, defined in different ways, and asserted in a variety of social spheres, even in the face of resistance. "Creative districts" (Florida 2002) and "creative capitalism" (Kinsley 2008); "social," "open," and "public innovation" (Howaltdt and Jacobsen 2011; Chesborough 2006) are just a few buzzwords being cast about in public debates in Europe and the USA. The theoretical framework presented here places the purportedly new *reflexive quality* of actions, orientations, and institutions, *both as an overarching and cross-cutting social phenomenon*, at the center of its analysis. Studies which refer to this framework should help gain a better understanding of the dynamics of creative processes in different fields of innovation and explain the success of specific innovations by examining social mechanisms of justification, valuation, imitation, and strategic network creation.

Our approach to analyzing the responses of different social spheres to the ubiquitous imperative of innovation differs from alternate agendas of innovation research and analyses of macro-level social change in various respects. First, unlike the predominant perspective with its underpinnings in economic theory, this approach does not limit itself to familiar fields of innovation such as the manufacturing and service sectors. Instead, we adopt and develop a more comprehensive *concept of societal innovation* rooted in the social sciences (Rammert 2010). Based on this conception, innovation is defined according to what actually counts as such in specific fields, e.g. in the arts, science, politics, or social planning. The economic concept of innovation is not abandoned in the process, but specified in terms of its main reference points, i.e. increased productivity and market presence. This positioning allows us to learn from the operational success of earlier notions of innovation while adopting a critical distance toward a purely economic assessment of innovation in other social fields.

An additional defining feature of this framework lies in the cross-cutting approach of examining the reflexive creation of novelty at several levels of society (micro, meso, macro). The political and economic sciences often focus on the macro-level of society, politics and economy, or specific organizations, analyz-

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ing, for instance, issues of governance or the management of innovation. With the approach under discussion, these levels remain analytically intact. The difference is that they are enriched by the specific *micro-level of creative and innovative action*. This allows for a productive dialog with studies that examine practices and processes of experimental inquiry, "playful" engineering, creative and improvised planning, as well as theories of subjectivity and reflexive action.

As a third notable aspect of the framework, empirical analyses of innovation can integrate *two or three observational forms*. The objective is not only to capture the discourses, practices or institutions of innovation; rather, starting from the focused analysis of a case, field, or development, scholars can identify and interrelate the semantic, pragmatic, and grammatical aspects of their chosen phenomena in order to go beyond the purely discourse-based or institutional analyses commonly found in current research. This approach should enable young researchers to differentiate between merely propagandistic (pseudo innovations), unrecognized (hidden or informal innovations) or strategic versus unintentional innovations, for example.

With this systematic perspective, individual research projects conducted across individual disciplines – e.g. new developments on the Internet; social change in various fields such as urban planning, the marketing of art, simulation in the sciences; as well as innovations related to political instruments or financial products – can be situated in the context of a *systematic theory of society*, in which the contemporary signatures and regimes of an innovation society can ultimately be identified and analyzed. Further lines of inquiry in this context may include, for example, a) whether the emergence and diffusion of a new reflexive model of action can be observed across different social spheres (i.e. along the lines of Weber's rationalization thesis), b) whether the mode of institutional differentiation is shifting towards fragmented and heterogeneously networked patterns of societal coordination and c) whether institutional innovation processes are increasingly occurring along set paths or as individualized innovation biographies.

Studies that follow this approach will therefore enrich established economical innovation research with new insights and findings, and open up previously unexamined fields to a more interdisciplinary research perspective and more specific lines of questioning. This comprehensive framework will also permit researchers to touch base with relevant fields in economic sociology, the sociology of knowledge and cultural sociology, organizational institutionalism, as well as science, technology and innovation studies and work to intensify dialog and common points of reference among these disciplines.

2. Research Agenda

2.1 Motivation and Central Focus: Reflexive Innovation as a Pervasive Social Phenomenon

Innovation was long restricted to the labs of scientists and engineers, R&D departments in the private economy and – though seldom acknowledged – artist's studios. Today, creative practices and innovative processes have become a ubiquitous phenomenon across all areas of society. What has changed is that the creation of novelty is no longer left to chance, ingenious inventors, and the creative habits of specialized fields. Innovations are increasingly driven with purpose, with numerous beneficiaries in mind, and in the context of broad-scale demands for strategic innovation. Innovations are managed as complex processes distributed among various entities and reflected in terms of the actions and knowledge of actors in other fields. *Reflexive innovation* refers to the interplay of these practices, orientations, and processes, while noting that the path of an individual innovation is observed, shaped, and influenced by its specific institutional setting and ties, discursive justifications, and the forms and paths of other innovations. This new form of innovation is not confined to laboratories or R&D departments – as can be seen by cross-disciplinary and regional innovation clusters – nor does it shy away from shaping new innovation regimes. Innovation society today is characterized by a wide variety of innovative processes in all fields and by the unifying social imperative to innovate reflexively. Innovation itself has become a topic of discourse driven by a "culture of innovation" (UNESCO 2005, 57ff; Prahalad and Krishnan 2008) that pervades all social spheres reflexively.

The central research question guiding studies on the proposed reflexive innovation society today is thus: What degree of reflexivity can be identified in contemporary innovation processes, where do these processes occur, and how are they distributed among different actors?

Hence, the main theme is the broader societal relevance of reflexive innovation. This includes practices, orientations, and processes of innovation in selected fields and how they develop and are strategically advanced within and between different areas of society. These innovative practices, orientations, and processes should not only be analyzed in the classic fields of economy (industry and services) and science (research and technology development), but also in contexts involving culture (the arts and creative cultural production) and politics (policy-making and social planning processes).

The objective is to analyze how specific innovative practices, discourses, and institutional arrangements have become increasingly reflexive in recent decades. We are additionally interested in whether new developments in other fields have promoted or impeded individual cases or paths of innovation. Empirical analyses in the individual fields and case comparisons will ultimately

permit an assessment of the extent to which the principle of reflexive innovation has become not only a rhetorical, but also a practical and institutional imperative in the current social climate of innovation.

We thus employ a more encompassing concept of innovation in society than that found in economics (Rammert 2010), which also allows us to capture new developments in the arts, social planning, and design, extending beyond economic calculations and rationalizations surrounding innovation. This concept also goes further than "social innovation" (Zapf 1989) and "political innovation" (Polsby 1984) in addressing the links between and different constellations of technical, economic, and social innovation. As a key distinction already described by Ogburn (1922) and Schumpeter (1939), this extended concept differs from "normal" social change in that it refers to new developments that not only "happen" and are then recognized and promoted. Instead, what we are interested in is the intentional, systematic creation of new material and immaterial elements, technical and organizational procedures and socio-technical combinations of all of the above that are defined as "new" and legitimated as an improvement compared to what came before. In contrast to Schumpeter's early writings, contemporary innovations are seldom brought forth by individual business entrepreneurs; instead, they are created by different types of collective entities (teams, communities, companies, networks) that – however influential or reflexive – are also only in partial command of the overall innovation process, which is distributed across numerous other entities.

"Doing innovation" has therefore become an explicit aspect of what social actors do with regards to knowledge, discourses, actions, social systems, and institutions. Continuous reflections on and about innovation are accompanied by elaborate discourses that justify the new developments based on the interests of specific actors and actor groups. These arguments can involve situational explanations, organizational and institutional rhetoric, and taken-for- granted ideologies. They can build on modern concepts of progress or subjectivity (Reckwitz 2008, 235ff) or pragmatic regimes of justification (Thévenot 2001) and valuation (Stark 2009, 9), construct views that make innovation seem necessary – or even unavoidable –, and promote investments in innovation. These ideas slowly crystallize into indisputable and sometimes highly authoritative "facts," or social imperatives for all actors involved.

Based on the above considerations, we can specify our research focus even further: *How reflexively do actors define and organize innovation in different fields of innovation and which justification discourses guide their practices and interpretations?*

This phrasing permits a specifically sociological approach to innovation that draws from areas such as the sociology of knowledge, organizations, economics, and STS. This approach should, however, be supplemented and supported by economic, historical, political and planning-based perspectives from other disciplines.

In contrast to the engineering sciences, the sole focus of our framework is not the production of new technologies, processes, or materials. Technical innovations in this stricter sense are a relevant point of reference; nevertheless, they are investigated in terms of their relations to non-technical social innovations, as well as their reflexive ties to economic, political, cultural, or artistic innovations. In contrast to economics, the main issue is not to increase the efficiency of different factors and processes. This conceptually limited economic understanding of innovation does constitute a central reference point in terms of its practical relevance; however, it is expanded to include other areas and ultimately superseded by a more encompassing concept in which complex interrelationships count. Economic innovations can thus also increasingly draw from various other references, e.g. artistic (Hutter and Throsby 2008) or political innovations. Unique hybrid regimes of innovation can even emerge from incongruities or "dissonance" between these references (Stark 2009) through the conflicts or compromises that occur as different regimes collide.

From our relatively broad social-science-based standpoint, our first concern is to develop an adequate understanding of innovation processes which are both distributed across various social fields and interconnected: How are different actors able to reflexively create and coordinate new developments based on existing patterns of action and justification? Second, we are concerned with understanding practices and processes: How are new developments distinguished as "new" by recognized institutions in different fields and deemed "innovations"? This includes the issue of power: Why, when, and in which constellations are specific actors and institutions able to define and successfully assert specific innovations?

Ample research is available for individual fields and forms of innovation (see Rogers 2003; Braun-Thürmann 2005; Fagerberg et al. 2005; Aderhold and John 2005; Blättel-Mink 2006; Hof and Wengenroth 2007; Rammert 2008; and Howaldt and Jakobsen 2010, among others). Innovation research, with its predominantly economic slant, has produced numerous analyses of the dynamics of technological innovations. Profit maximization, rational decision-making, and transparent price signals are built into this set of explanations. Nevertheless, these models also include insights into the boundaries of rational technology choices as well as the historic or evolutionary character of long-term technology development (see e.g. Rosenberg 1976; Nelson and Winter 1977; Elster 1983; Utterbeck 1994). With its strong focus on management, innovation research has presented in-depth studies of relevant personnel and organizational factors at the level of the firm (cf. Gerybadze 2004; Gemünden et al. 2006) and corporate networks (cf. Sydow 2001). This research emphasizes creativity and cooperation, trust and heterogeneous organization. More recently, however, scholarly interest in innovation has shifted from scientific and economic loci to other groups such as users, early adopters, and social movements (Hippel 1988, 2005; Chesbrough 2006) as new focal points.

In recent years, also due to technological and scientific competition and the necessity of drafting national innovation policies, research within this disciplinary tradition has also picked up on insights that innovation can include new forms of work (Barley 1990; Barley and Kunda 2004) and the creation of activity spaces (Massey 1992, 1995; Moores 2005) for individuals and collective actors. Innovation is now also viewed as a societal phenomenon, often with a transnational scope. This requires a broader conceptual framework and the integration of other social science disciplines. Innovations have thus been increasingly investigated in the context of organizational fields (DiMaggio and Powell 1983; Hoffman 1999), as well as national innovation systems and global innovation regimes (cf. Nelson 1993; Edquist 1997; Braczyk et al. 1998; Blättel-Mink and Ebner 2009). Innovation paths are regarded more and more as the result of cultural constructs and institutional selection, in which non-governmental organizations (NGOs) and professions play a substantial role alongside firms (Meyer et al. 1997; Meyer 2005; Fourcade 2009). Continuity and breaks among such constellations can result in different innovation biographies (Bruns et al. 2010).

The ongoing influx of new developments in cultural fields and the new creative industries has also been analyzed by scholars in order to integrate the various interrelationships of a modern society in the grips of permanent renewal in view of changing forms of media (Castells 1996; Florida 2002). Political science and sociological governance research have broadened the economic research perspective (Powell 1990; Kern 2000; Windeler 2001; Sörensen and Williams 2002; Lütz 2006; Schuppert and Zürn 2008). The history of technology, science, and economics provide the necessary historic dimension to the phenomenon of innovation and its economy (Wengenroth 2001; Bauer 2006; David 1975; Mowery and Rosenberg 1998).

A specifically sociological view of innovation has only begun to emerge, e.g. with the transfer of constructivist and evolutionary models from research on the development of new technologies (Rammert 1988, 1997; Braun-Thürmann 2005; Weyer 2008), with organizational and network research focused on innovation processes (Van de Ven et al. 1989, 1999; Powell et al. 1996; Garud and Karnoe 2001; Windeler 2003; Hirsch-Kreinsen 2005; Heidenreich 2009), and with models of creative production and cultural innovation from the sociology of knowledge and cultural sociology (Popitz 2000; Knoblauch 2013) all expanding the scope of innovation studies.

The next step towards a comprehensive sociological understanding of the innovation society is research that focuses on the practices and processes of the reflexive production of novelty. Existing approaches to sociological and social-science-based innovation research can be bundled to develop a more comprehensive perspective by drawing from various empirical studies of innovation fields in different areas of society and comparing them systematically with regard to the rules and regimes of reflexive innovation. Through this comparison we can gain a more thorough investigation of creative practices and innovation processes;

more overarching topics such as the societal embeddedness and varying interrelationships of different regimes should also receive increased attention.

2.2 Analysis: Dimensions of the Research Framework

Dimension I – Observation Forms: Semantics, Pragmatics, and Grammar

Innovations are not straightforward facts. They must first be made into such through practices of perception and legitimation. Innovations are linked to justification discourses that can contain both practical ("accounts") and theoretical ("ideologies") elements. Such ascribed concepts make innovations meaningful and understandable for direct participants in innovation processes as well as other actors. These processes traverse several stages of development: they are labeled, imbued with meaning, linked to existing knowledge, instilled with recognition and esteem, and invested with permanence through institutionalization. They can even come to develop their own paths.

The distinction between semantics, pragmatics, and grammar – though not in the more narrow sense of linguistic analysis – has already been transferred to sociological technology studies (Rammert 2002, 2006). It furnishes us with three analytical dimensions with regard to observing society: social semantics, social pragmatics, and social grammar. *Semantics* refers to the significance of what is recognized in society as innovation, i.e. to meaning, knowledge, and discourses. Innovation is not necessarily expressed explicitly in language; it can also be expressed primarily in actions, as well as in new constellations of action and technology. We use the concept of *pragmatics* to refer to this dimension. Finally, *grammar* denotes the arrangements, regimes and rule systems that make innovation possible in the first place, as they establish a basic framework that also places limits on innovative developments.

The three perspectives of semantics, pragmatics, and grammar allow differences in the relative importance and primacy of these elements in the creation of novelty to be captured empirically and juxtaposed for analysis and comparison. These perspectives may also diverge, e.g. when doing innovation (pragmatics) takes on a life of its own and divorces itself from that which is declared as "new" (semantics). These aspects can override each other and assume a leading role in innovation processes in different ways. One of the research questions that follows from the proposed framework is thus to observe whether one or more of these three perspectives is absolutely critical, or perhaps even negligible, in the innovation fields analyzed as well as the significance assigned to this state in individual cases. Further, more specific lines of questioning include:

- Are there fields of innovation in which specific discourses (semantics) are strong drivers of innovation, as it appears to be the case in politics and planning activities oriented on sustainability, and for artistic innovations?
- Are there fields in which systems of rules (grammar) from different areas of society either promote innovation or restrict new developments? Patent re-

gimes could be postulated as an example of the former; the adoption of collaborative R&D forms from other countries in the USA until the mid-1980s as an example for the latter.
- Are there also fields in which innovations quietly prevail as implicit dimensions of practices, or concealed in material products (pragmatics) despite cumbersome rule systems and without explicit announcements? Social and cultural innovations occurring below the public radar could serve as examples.

In addition, as regards the interplay of different aspects of innovation processes, we are particularly interested in whether these take on a mutually reinforcing character and how this interplay might influence subsequent developments. This also lets us capture more complex social phenomena, such as those which can emerge through unintended consequences of social action and through the overlapping of other social fields.

Dimension II – Aggregation Levels of Innovation: Action, Organizations, and Society

From a sociological perspective, we can observe innovations at different levels, regardless of whether we are dealing with cases of "knowledge," "fiction," or "institutionalization." We can distinguish between three levels of innovation: action, organizations, and society (see also Luhmann 1975; Röpke 1977). This distinction serves as a heuristic device to pinpoint the subjects of investigation and therefore also to coordinate project research.

At the level of conceptualizations, plans, and projections, we can regard *innovation as a phenomenon rooted in action*. As important as the social observation, negotiation, legitimation, and embeddedness of the innovation may be, it is usually based in action. Moreover, even though an innovative action can only be viewed as innovative (or not) in relation to other actions, our objective is to systematically account for the activity of knowledgeable subjects as the source of innovations and also to observe the creation of novelty as a micro-structural phenomenon in various research fields. One suitable point of departure for this endeavor is doubtlessly sociological theories of action, which also broach the issue of plans, imagination, and creativity (Joas 2002; Popitz 2000). Links between current forms of flexible production, the development of creative industries, and the subjectification of work (Bolte and Treutner 1983; Voß and Pongratz 1998; Moldaschl and Voß 2002) emphasizes the ongoing significance of subjectivity.

If interactions are already relevant at the micro-structural level, they play an even more important role at the *organizational level*. The internal organization of innovations, social forms of the production of novelty, and innovation networks are situated at the analytical crux of this level. Research can analyze, for example, the interactive organization of scientific work, operational production processes, and management practices geared towards innovation in firms. Fur-

ther focal points can include practices and processes at the firm level, in inter-organizational networks, and in organizational fields. A central assumption is that not only the diverse relationships between different organizations – lab and patent offices, studios and museums, and architecture firms and city planning departments –, but that also the ways in which these organizations coordinate their interactions and relationships hold a relevance for the creation of novelty. The arrangements and rule systems constituted by these areas form the key elements of specific innovation regimes. These areas are simultaneously the contexts in which innovations emerge in practical terms and are semantically justified.

Society is the third relevant level of observation, which increasingly calls for an analysis at the global level, i.e. as a "world society" traversing the boundaries of individual nation states. The obvious focus in this regard lies on the distinct macro-structural features of those areas of society most likely to be gripped by the imperative of innovation, e.g. science and economy. To do justice to our concept of a more comprehensive approach, we accentuate the need to analyze fields of innovation which are most prominently situated in other areas of society (culture and politics, for example). Research on the level of society could, on the one hand, focus on sets of semantics, practices, and grammar systems with an overarching social relevance; on the other, scholars could observe the formation of transnational sets and the adoption of mechanisms and actor constellations that either drive these developments or stand in their way.

Dimension III – Social Spheres and Fields of Innovation: Technology/Science, Industry/Service, and Fields of Comparison

Innovation studies today mostly focus on technological artefacts. Novel technologies are organized primarily in the highly differentiated spheres of science and economy, as well as in the increasingly dense networks between the two (cf. Bommes and Tacke 2011). Central fields of innovation in these key areas include technological disciplines in which the lines between "pure" technology and "pure" science are blurred (cf. "technoscience" from Latour 1987). *Industrial production and the service sector* are further spheres in which economic competition drives actors to demand, develop, and market "innovative" technologies and procedures.

Besides these obvious spheres, the spectrum for investigation addressed by our framework also encompasses those fields of society which have as yet received scant attention in innovation research. This includes for example the production of art as well as political and planning processes. Since the Italian Renaissance, originality has been a driving ideal in the arts, along with ongoing technical and institutional innovations. References to the "creativity" in the arts have made their way into the semantics of innovation in other spheres of society: artistic performance techniques are increasingly employed in the business world, for example (Boltanski and Chiapello 2003), and their implicit organizational structures are also transferred to processes of scientific discovery pro-

cesses. When analyzing the arts, the objective is not to limit research to organized arts and their institutional forms in a narrow sense, but to observe the broader context of artistic creation processes (Dewey 1988) which actors themselves describe as "creative" (Bröckling 2007). This can include, for instance, the design of human-machine interfaces, music making with software samplers, etc.

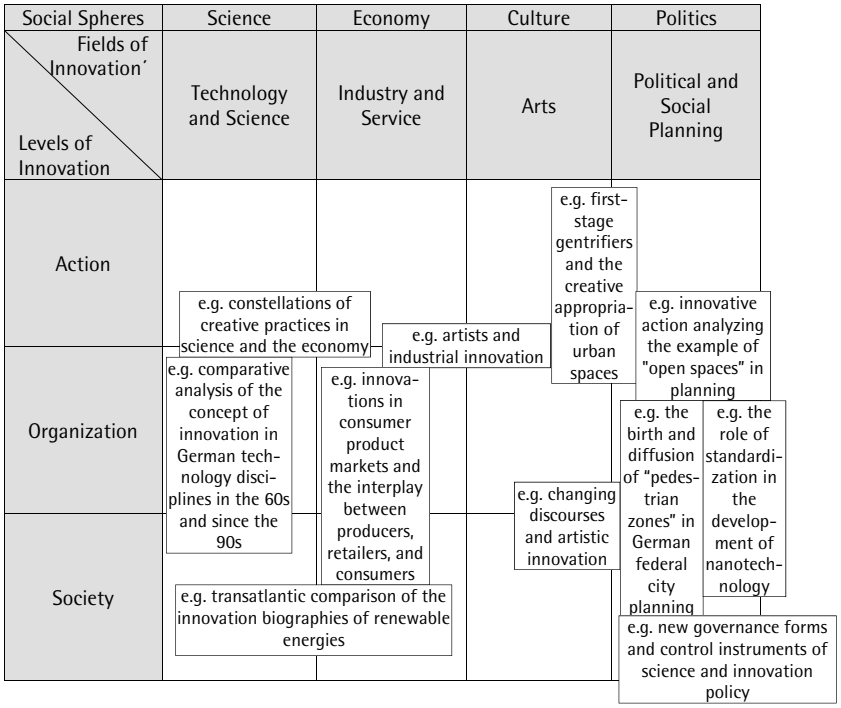
Starting in the mid-1970s, the field of *political and social planning* experienced a massive upheaval in the face of disillusionment and nation state politics challenged by globalization. Meanwhile, the arenas of negotiation have shifted and undergone restructuring. New, and in part, "high-tech" decision-making aids and policy instruments have been devised and established. The driving actors have reassured themselves and the addressees of their actions that these changes are not only new, but better – in short "innovative" – for confronting potential problems (Djelic and Sahlin-Andersson 2006). These developments are closely aligned with innovations in other fields, particularly spatial planning. Innovations in governance have thus already emerged as a subject of research (Voß and Bauknecht 2007). Numerous social planning and policy measures are based on survey data collected along national or federal state boundaries. Innovation processes – e.g. in innovation clusters – do not develop in line with these geographical boundaries. New foundations and, in some cases, new instruments are therefore required for political and social planning measures in an era of reflexive innovation. This will allow them to account for heterogeneous innovation processes transecting multiple organizations by incorporating relational data.

Innovations involving technical artifacts are general regarded as distinct from new policy instruments or innovations in other fields (Zapf 1989; Gillwald 2000; Rammert 2010). For a comprehensive perspective on innovation we have to analyze commonalities, interrelationships and differences with regard to innovations in individual and different fields. Possible topics could include the recombination of technical artifacts, problem-solving practices or improved institutional processes.

Fields of innovation themselves are subject to change as the medium and result of reflexive innovation on a societal level. One basic change concerns the boundaries of the fields of innovation. We believe that the permeability of these boundaries is increasing. Research projects referring to our framework can thus be situated in both classic fields of innovation within defined areas of society and in new fields of innovation that cut across different boundaries: the former permits an analysis of the extent to which reflexive innovation leads to a proliferation or perhaps even a comingling of references in relation to its justification and valuation, e.g. innovations in companies that increasingly employ political and ethical references in addition to economic ones (Kock, Gemünden, Salomo and Schulz 2010), or scientific innovations that are subject to the dual pressures of remoralization and economic rationalization (Weingart, Carrier and Krohn 2007; Schimank 2006). In examining heterogeneous fields, we also hope to bring up issues of co-production, co-existence, stabilization and path creation for hybrid

innovation regimes. A systematic question that links both classic and heterogeneous fields, and one that is at the heart of our research agenda, involves the comparative assessment of innovation dynamics from the 1960s to the 1980s, e.g. have fundamental changes occurred in relation to innovation paths and discourses?

Figure 1: Possible Research Topics in and between Innovation Fields



Examples of dissolution, transfer, and heterogeneity in innovation fields that we propose to investigate include:

- Innovations at the boundaries between science and industry (transfers, spin-offs, international networks/alliances)
- Innovations situated between science and politics (consulting, governance; urban, regional, and environmental planning)
- Innovations that cross the lines between industry and politics (regional clusters, competence networks, trend-setting technologies)
- Innovations situated between the arts and economy (design, architecture, marketing, fashion)

Cross-cutting research questions for all fields include, e.g.:

- The pragmatics and semantics of creativity in science, technology, economy, and the arts
- Comparative forms of innovative processes in organizations
- Paths of innovation, as well as discontinuities or fractures, evaluation processes, new relationships and heterogeneous actor constellations.

3. Prospect: Pluralistic View of Theory and Research Methods

In this paper we present a research framework with which to study practices, orientations, and processes of innovations in and between various areas. Our goal is to develop a more in-depth and empirically founded understanding of the meaning of innovation in contemporary society and the social processes it involves.

The broad research concept corresponds with a pluralistic approach to methods. This pluralism should not be equated with arbitrariness. The systematic reference point of "reflexive innovation" requires a clear formulation of initial hypotheses and a reflection on proposed methods. Certain methods are also closely associated with individual analytical perspectives. An analysis of pragmatics requires direct access to actions and objects in the field, e.g. through participant observation, video analysis, technographic studies, or reconstructive interviews. Semantic analyses, on the other hand, require a stronger content-based perspective, one that employs methods such as ethnosemantics, genre or discourse analysis. A grammatical perspective can be complemented by methods such as innovation biographies, path or network analyses.

With this paper we want to open up a broad theoretical framework for analyzing the reflexive creation of novelty. A wide variety of theories can be applied in individual studies which refer to the framework. These approaches provide both competing and complementary perspectives for an examination of innovation in contemporary society. The framework's focus on reflexive innovation and the interplay of semantics, pragmatics, and grammar provides a general theoretical orientation for different research cases. Its focus is also primarily at the societal level. Given these elements, reflexive innovation can be analyzed as a central aspect of societal development using a variety of different theoretical propositions and disciplinary methods.

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